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NORTH MANITOU ISLAND
SLEEPING BEAR DUNES



NATIONAL LAKESHORE / MICHIGAN



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DEVELOPMENT CONCEPT PLAN
INTERPRETIVE PROSPECTUS

North Manitou Island
Sleeping Bear Dunes National Lakeshore
Michigan

U.S. Department of the Interior / National Park Service

SUMMARY

This Development Concept Plan/Interpretive Prospectus updates and describes in greater detail the North Manitou Island visitor use proposal contained in the General Management Plan (GMP) for Sleeping Bear Dunes National Lakeshore (NPS 1979a).

Primary issues include the use and disposition of over 50 buildings in the village and throughout the island, the need for information/orientation facilities and services, the extent of the trail system, a campsite management strategy, administrative facility needs, and more specific boundaries for the 27-acre village wilderness exclusion (nonwilderness area).

As stated in the 1979 GMP, the visitor experience at North Manitou Island will be a primitive experience emphasizing solitude, a feeling of self-reliance, and a sense of exploration. Interpretation will be limited to literature and a few wayside exhibits in the village.

Most island visitors will arrive by ferry at a new dock in the village to stay a few nights on the island. A small contact station will be provided in a remodeled historic structure in the lifesaving station complex. The complex will also serve most administrative functions such as ranger residences. Most village structures outside the lifesaving station complex will be removed except for one building for maintenance and storage, one building for a camping shelter, and a historic sawmill. The sawmill will be preserved as an interpretive display if it is determined eligible for the National Register of Historic Places. Structures in the backcountry will be allowed to deteriorate naturally.

An existing figure-eight trail system on former dirt roads will be retained and supplemented by a designated trail to Lake Manitou, also on a former dirt road. The open-camping policy will be continued for the backcountry, and a monitoring program will be instituted to check resource impacts and other management concerns. If necessary, more restrictive management actions will be implemented, such as designated campsites. The existing village campground will be supplemented by another small primitive campground south of the lifesaving station complex. Specific boundaries are proposed for the village wilderness exclusion, which will encompass the lifesaving station complex, sawmill, and camping shelter, and will provide access to private land in the village.

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INTRODUCTION

BACKGROUND

Congress authorized the 71,000-acre Sleeping Bear Dunes National Lakeshore along the northeastern shore of Lake Michigan in 1970. The enabling legislation (PL 91-479, 84 Stat. 1075) states ". . . that certain outstanding natural features, including forests, beaches, dune formations, and ancient glacial phenomena . . . ought to be preserved in their natural setting and protected from developments and uses which would destroy the scenic beauty and natural character of the area." The lakeshore was authorized ". . . for the benefit, inspiration, education, recreation, and enjoyment of the public." The act further directs that the lakeshore be managed ". . . in a manner which provides for recreational opportunities consistent with the maximum protection of the natural environment within the area."

North Manitou Island is the larger of two offshore islands at Sleeping Bear Dunes National Lakeshore. It was included in the lakeshore when established in 1970; however, most of the land was in private ownership until August 1984. Therefore, the island was not opened to visitor use until the fall of that year.

PURPOSE

This Development Concept Plan/Interpretive Prospectus (DCP/IP) will guide use, development, and maintenance of North Manitou Island facilities for the next 10 to 15 years or more. The DCP/IP updates and describes in greater detail the island's visitor use proposal contained in the General Management Plan (GMP) for Sleeping Bear Dunes National Lakeshore (NPS 1979a).

REVIEWED PLANS AND STUDIES

The management concept for North Manitou Island is expressed in the 1979 GMP as follows:

The primitive character of this island--its inaccessibility, lack of development, and relatively large size (14,753 acres)--will be emphasized. Essential aspects of the visitor experience will be a high degree of solitude, a feeling of self-reliance, and a sense of exploration.

Limited orientation and interpretive aids will be provided to encourage a different type of experience for visitors, one that will be based on an individual's skills at getting around. A limited trail system will be provided to connect major segments of the island with designated campsites and a docking area.

A permanent docking facility will be provided in the village area . . . to ensure safe visitor access. The lifesaving station near the village will be adaptively used as an administrative facility where resources management and visitor protection activities will be centered. A temporary docking facility will be available during the visitor season near Dimmicks Point (southern part of the island) to ensure safe access in case bad weather prevents landing in the village area.

The introduced white-tailed deer population will be managed in accordance with the island's resource capability. This will provide opportunities for wildlife observation and hunting.

The island dock location was analyzed in the Sleeping Bear Dunes Docking Facility Environmental Assessment (NPS 1984), and a specific site in the village area was approved in 1985. A permanent docking facility is currently being developed. The temporary/seasonal dock near Dimmicks Point is undesirable because the point is nesting habitat for the piping plover (Charadrius melodius), which was recently added to the federal endangered species list. When completed, the new village dock will be usable during most weather conditions, thus making the dock near Dimmicks Point unnecessary.

In 1981 the Park Service completed a Wilderness Recommendation for Sleeping Bear Dunes National Lakeshore. The report recommended that most of North Manitou Island be designated as "potential wilderness" by an act of Congress. Potential wilderness is a classification for lands that would be suitable for wilderness if nonfederal ownership rights are acquired and conflicting uses are terminated.

While the wilderness area has not yet been established by Congress, 1982 amendments (PL 97-361) to the lakeshore's enabling act specified that the areas described in the 1981 wilderness recommendation ". . . shall, until Congress determines otherwise, be administered by the Secretary (of the Interior) so as to maintain their presently existing wilderness character and potential for inclusion in the National Wilderness Preservation System." Therefore, except for a 27-acre village exclusion, the Park Service must manage the island as if it were wilderness.

PLANNING ISSUES

Cultural Resources

Over 50 buildings on North Manitou Island were built for logging, farming, maritime, or recreational purposes before becoming federally owned. Most are over 50 years old, and many are in poor condition and rapidly deteriorating. Prior to this study, their eligibility for the National Register of Historic Places was undetermined, which caused uncertainty about management of the buildings. About 20 of the island's structures are in the area recommended for wilderness, significantly limiting the options for historic structures management. The DCP/IP summarizes the results of a data report prepared for this project and addresses building use and disposition.

Visitor Use/Interpretation

The GMP specifies a primitive visitor experience for North Manitou Island; however, visitors will need some basic orientation/interpretation information. The DCP/IP addresses what facilities, services, or other approaches are appropriate to meet this need.

The GMP states that a ". . . limited trail system will be provided to connect major segments of the island with designated campsites and a docking area." Recently a figure-eight trail system was designated on the island, and a small campground was designated near the village. The extent and location of the trail system needs to be identified, and a current backcountry campsite management strategy should be established.

Overnight use, visitor contact, and interpretation are the primary functions that may require facilities in the village area wilderness exclusion. The DCP/IP determines what facilities are needed, where they should be located, and which existing structures can be adapted for these uses while still being consistent with the intended visitor experience.

Park Operations

Travel to the islands is by boat from the mainland; however, access is restricted by frequent storms that bring heavy seas. The GMP identified the need for an administrative facility on the island. This DCP addresses the space needs and location of these functions in the village area. The need for backcountry ranger facilities that are consistent with wilderness management is assessed along with the location and types of facilities needed for utility and sanitary disposal needs.

Wilderness Boundary

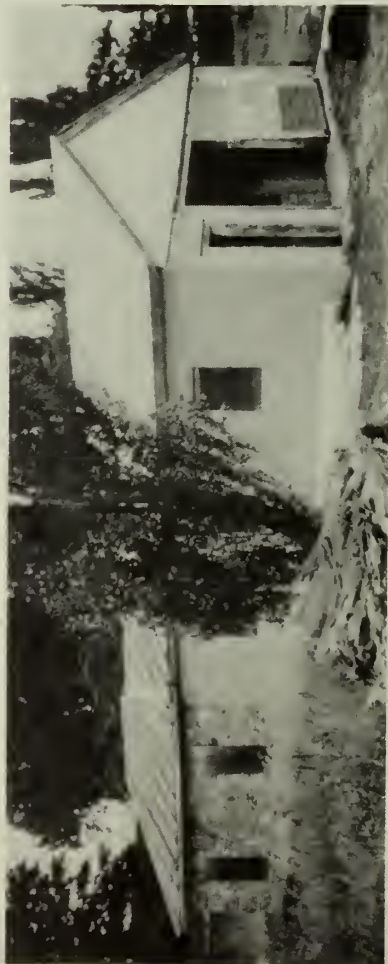
As mentioned above, the 1979 GMP and 1981 Wilderness Recommendation proposed a 27-acre development/historic zone and wilderness exclusion for the village area. However, the maps are general, and precise boundaries are not described. Because Congress has directed the Park Service to manage the recommended wilderness areas as wilderness until Congress determines otherwise, imprecise boundaries make management of activities in the village area uncertain. The DCP clarifies the proposed boundaries based on a current, more detailed visitor use and development strategy. This will also assist the legal mapping process when wilderness is formally established.



North Manitou Island Village



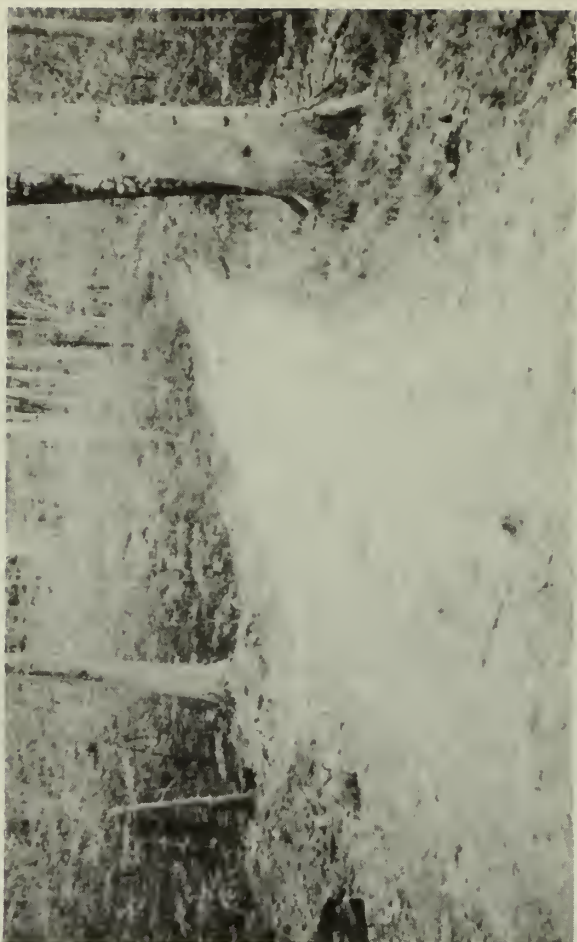
Lifesaving Station Complex



Generator Building



Lifesaving Station Shed



Typical Trail at North Manitou Island



Lifesaving Station Main Building



Crews Quarters Building



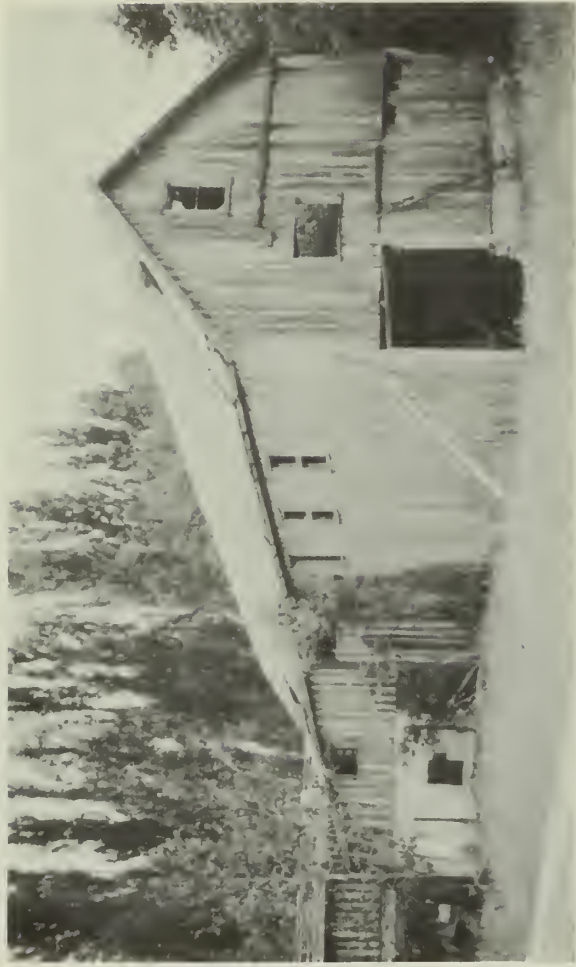
Beach Cart House



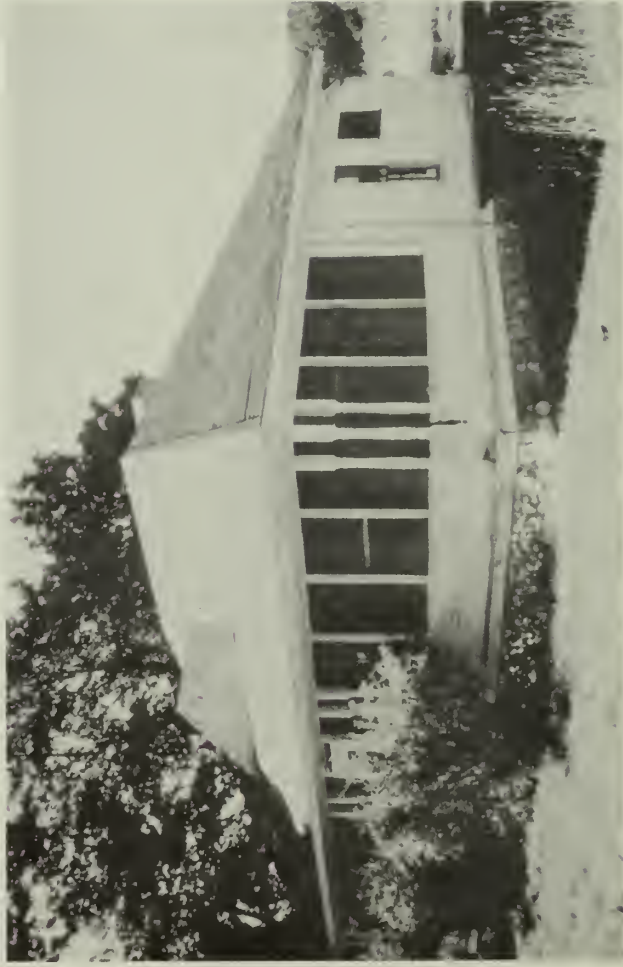
Boat House



Caretaker House



Sawmill



Monte Carlo House



Village Barn

DESCRIPTION OF THE AREA

REGIONAL SETTING

Sleeping Bear Dunes National Lakeshore is in the five-county Grand Traverse Bay region, an area of diverse recreational resources that is attracting growing numbers of vacationers as well as summer and year-round residents. Traverse City, 20 miles east of the lakeshore, provides the majority of air and bus transportation and visitor services for the region.

Access to the mainland portion of Sleeping Bear Dunes is by way of U.S. 31 and Michigan 22 from the south, Michigan 72 and U.S. 31 from the east, and Michigan 22 from the north. Michigan 22 traverses the entire length of the national lakeshore. North and South Manitou islands are seasonally accessible by boat from Leland, which is 5 miles north of the lakeshore boundary and 12 miles by boat from the islands (see Vicinity map). Ferry service is provided to the islands. Launching sites and docking facilities for private boats are in Frankfort and Leland.

Approximately 64 miles of Lake Michigan shoreline--31 miles along the mainland and 33 on the Manitou Islands--are included within Sleeping Bear Dunes National Lakeshore. Most of the shoreline is relatively undisturbed, with wide sandy beaches, shoreline bluffs, and dunes.

Except for previous logging and some agricultural use, North Manitou Island is predominantly undisturbed, with an extensive beech/maple forest, wave-cut and shoreline bluffs, perched dunes, lakes, cedar trees, and an introduced white-tailed deer population. Outstanding views of South Manitou Island and the mainland can be seen from the southern portion of North Manitou Island.

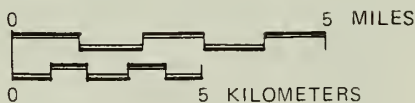
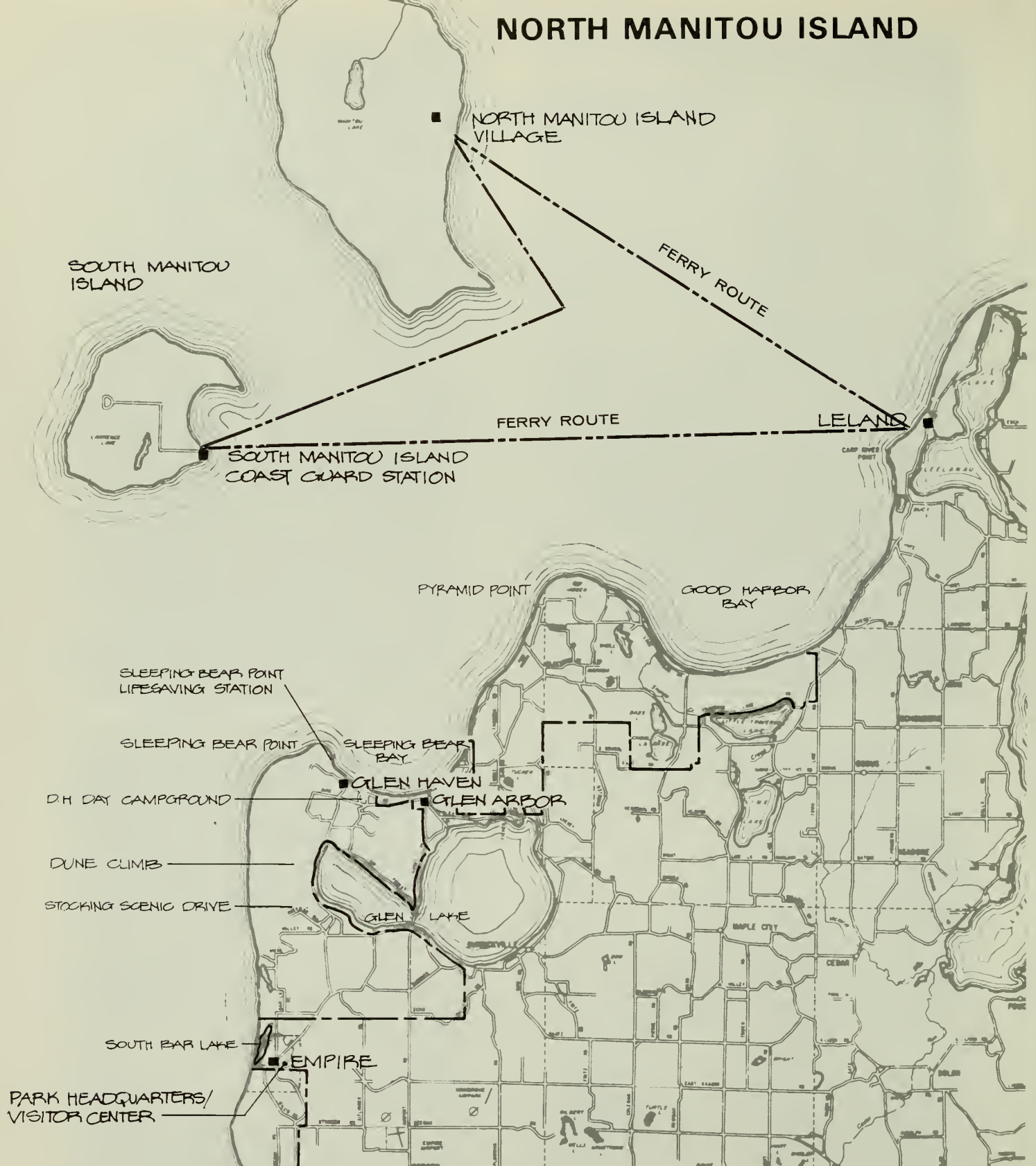
NATURAL RESOURCES

Sensitive Areas

North Manitou's perched dunes and much of the shoreline dunes are fragile, easily eroded resources. Sand dune preservation was one of the primary reasons that the Sleeping Bear Dunes was established as a national lakeshore. The state of Michigan has also passed the Sand Dunes Protection and Management Act to preserve the dunes along the Great Lakes' shorelines. North Manitou Island's northwest and southeast ends are designated sand dune areas.

The wetlands at Tamarack Lake and Lake Manitou and the Pot Holes area are sensitive habitats. These sites exhibit a large degree of species diversity and contribute to the island's floristic richness. The Pot Holes and Old Baldy dune area are classified as outstanding natural feature subzones on the Management Zoning map in the 1979 GMP. As mentioned above, Dimmicks Point is a piping plover nesting area that is extremely sensitive to disturbance during the nesting season (May 1 to July 31).

NORTH MANITOU ISLAND



VICINITY

NORTH MANITOU ISLAND

SLEEPING BEAR DUNES NATIONAL LAKESHORE, MICHIGAN

U.S. DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

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Soils

In addition to lakebeach soil, the major type at the North Manitou Island Village is Mancelona-East Lake loamy sand (0 to 6 percent slopes). Surface runoff is slow, and the erosion hazard is moderate. Engineering interpretations indicate fair stability, fair workability, and good shear strength. Some of the former agricultural lands have been designated prime farmland by the Soil Conservation Service (SCS, USDA 1980), but it does not include fields near the village, and wilderness management precludes agricultural activities elsewhere.

Vegetation

The Northern Hardwoods is the largest forest association on North Manitou Island. This association usually consists of beech and sugar maple. The island's forests are second and third growth timber. Associated species include wild black cherry, yellow birch, white birch, ironwood, basswood, hemlock, big-tooth aspen, white ash, and red oak. The introduced deer population on the island is responsible for the present forest structure and severe browse line. Limited understory species are found under 6 feet, so the forests appear open and "park-like." The ground layer is rich in overstory seedlings.

No known plants on North Manitou Island are on the federal list of endangered species. Populations of pitcher's (dune) thistle (Cirsium pitcheri), a species listed as threatened by the state of Michigan, are found at Dimmicks Point. The thistle is under review by the U.S. Fish and Wildlife Service for possible addition to the federal list. Two other plant species listed by the state of Michigan are found on North Manitou Island--Pumpelly's brome grass (Bromus pumpellianus) and chestnut (Castanea dentata).

Wildlife

With the exception of birds, relatively few wildlife species are on North Manitou Island, compared with the numerous species on the mainland. The principal species of mammals is the introduced white-tailed deer. The deer have caused an unnatural vegetation mix and are subject to overpopulation and severe food shortages. A "Natural Resource Management Plan" (NPS 1985) has been prepared, and the island deer population is being managed through special hunting seasons to reduce the herd to a level that will permit natural vegetation recovery.

Two endangered birds, the peregrine falcon (Falco peregrinus anatum) and the bald eagle (Haliaeetus leucocephalus), are occasionally reported in the Sleeping Bear vicinity; but no peregrine falcon nests have been reported on North Manitou Island. Bald eagles have nested on the northern portions of the island; however, it has been at least 20 years since bald eagle nesting has been observed. The piping plover, which was added to the federal endangered species list on January 10, 1986, is known to nest on Dimmicks Point. This site is one of the few nesting sites for the piping plover in Michigan.



Air and Water Quality

Sleeping Bear Dunes National Lakeshore is a class II air quality area. Based on monitoring at the EPA-sponsored station at the visitor center near Empire on the mainland, air quality in the area is good. The measured acidity of precipitation is occasionally high.

Lake Michigan waters in the vicinity of the national lakeshore are considered to be high quality.

Floodplains and Wetlands

In October 1986 the lake reached an all-time record high of 581.6 feet (International Great Lakes Datum) average for the month (COE 1986). The estimated 100-year and 500-year floodplains for Lake Michigan are at elevations of 582.4 feet and 583.0 feet, respectively (COE 1977). The village structures being considered for occupancy are above these levels. Because the village is on the east side of the island, which is protected from large waves, and the shoreline slope is gentle, wave runup should be minimal.

Wetlands are on the island adjacent to Lake Manitou and Tamarack Lake; however, none are in the village area.

CULTURAL RESOURCES

Archeology

A preliminary archeological survey of North Manitou Island was conducted by Dr. Charles E. Cleland of Michigan State University in 1966 at the request of the Angell Foundation. While Dr. Cleland noted seven sites in his survey, four of which are close to the eastern shore, he considered his findings to be preliminary. None of the sites were in the village area. Dr. Cleland concluded that North Manitou had been occupied by primitive peoples by at least 1000 B.C. and again between A.D. 1000 and arrival of Europeans. There is also a trash dump near the shoreline north of the village sawmill, extending several hundred feet along the embankment above the beach. Much of the discarded rubbish is waste material of relatively recent vintage, but underneath the surface may be artifacts of some archeological interest.

History

Following is a North Manitou Island history summary. For further details see the "History Data Report for North Manitou Island" (NPS 1986).

In the 19th century, early Europeans settled on the lower Michigan peninsula. The early steamers that brought settlers were always in need of wood to fire their boilers, and North Manitou was one of many refueling stations. The island's favorable location opposite several mainland ports also made it a way station for shuttling people who wished to establish permanent homes

across the channel. A few immigrants selected North Manitou as their prospective home, with the intent of engaging in farming. Like many other places with marginal quality soil, the island disappointed most of the farmers, and in time, drove them away to other places or other occupations.

Meanwhile, the island continued to provide firewood for steamers for more than half a century. At the same time, most of the remaining settlers turned to better forms of earning a living. For a few decades, a handful of commercial fishermen based themselves on the island but later moved to the mainland, particularly Leland, finding it a more prosperous place because it was a better home port and provided easier access to a market. By the 1890s the island also saw the beginning of a workable experiment with fruit farming, one that coincided closely with its success on the adjacent mainland. As a result, apple and cherry trees were planted, and cherry orchards proved to be as profitable on the island as in the nearby counties across the channel.

A concerted effort was also made during the 1890s to develop a resort community on the island that came to be known as North Manitou Village. People with means from regional urban areas built a line of cottages on the island, one of which was run as a summer hotel. Another wealthy family, the Bourniques, held land apart from the village near the southern tip of the island. They built an elaborate summer home complex of about 10 structures shortly after 1900. Once a resort system was established, there was some social interplay between the summer visitors, the permanent island dwellers, and the government personnel of the adjacent lifesaving station and the lighthouse complex. The lifesaving station had been established during the 1870s and ended its active existence in the 1930s. The lighthouse installation at the south end of the island was built in the late 1890s and also closed down in the 1930s.

In the 20th century general farming by small private landowners declined to the point of near extinction. Only one family, the Maleskis, engaged in farming on North Manitou Island for three generations. Even the Maleskis gradually modified their operation from general farming in the early days to truck farming later; the latter mode of cultivation was devoted mostly to accommodating the summer visitors and other island dwellers. In the early days farming had been market oriented, with shipment of cattle and produce to places like Chicago; but at the end, most of the output was consumed on the island.

The island entered a different social stage in 1926. William R. Angell began to buy up most of the island's land that year and continued to buy more as the years went by, in an effort to become the sole proprietor of the entire place. From the start, he administered the island under the aegis of several legal entities, all headed by himself. The Syndicate was first. It was a continuation of the corporate body that predated his coming and which he transformed into the Manitou Island Association in the 1930s. The association continued to manage the island, even after it was subsumed under the Angell Foundation established in 1949.

Angell grew fruit for several decades after his arrival on the island. Otherwise, his employees farmed mostly to raise fodder for his farm animals. Only a portion of the food was used to feed the seasonal residents.

Angell also introduced deer on the island when he took over. The explosion of the deer population inspired him to establish an annual sport hunting season with the approval of Michigan authorities. The foundation continued this practice after Angell's passing in 1950 and added the enterprise of selective logging in 1956, which continued for 20 years.

Historic Resources

The historical events that transpired on North Manitou Island are illustrated under the following theme and associated subthemes in American history.

| <u>Theme</u> | <u>Illustration</u> |
|-----------------|---|
| America at Work | Farmer's frontier in the westward expansion of the nation |
| <u>Subtheme</u> | |
| Agriculture | 19th century fruit farming |
| Commerce | Exporting farm produce |
| Transportation | Great Lakes steamers to island for firebox fuel or linking island to outside world in commerce |
| Industry | Logging operations that supplied fuel for steamers and wood for lumber |
| Architecture | Turn of the century design of Katie Shepard summer hotel Opulant construction of Bournique place Antique structural features of Swenson/Westside barn More recent design of the village barn |

The village sawmill illustrates the industry subtheme by its association with logging. It was, however, used more for the association's incidental building construction rather than for continuous large-scale lumber production. The lifesaving station represents features of the older transportation modes and the standard government architectural design of its facilities. Most of the more important island structures are only of local significance, at best, in illustrating the history of the island against the national backdrop; however, the lifesaving station complex may be of statewide significance.

The following North Manitou Island properties are considered by the Park Service as potentially eligible for nomination to the National Register of Historic Places:

Former U.S. Coast Guard lifesaving station complex in the village

Katie Shepard summer hotel and cottage in the village

Sawmill on the north edge of the village

Large village barn

Swenson/Westside barn

Bournique place near the south end of the island

A complete list of historic resources on North Manitou Island is presented in table 1, and their locations are shown on the Historical Base map. Those properties that are considered potentially eligible for nomination to the National Register of Historic Places will be reviewed by the state historic preservation officer and Advisory Council on Historic Preservation.

VISITOR USE

North Manitou Island was opened to the public in late 1984. Because the island lacks a suitable permanent dock, regular ferry service has not been provided. Visitation has been low and sporadic, except for the NPS-managed deer hunting season. In 1985, total visitation was estimated to be about 1,500; 710 of these were fall hunters. In 1986, total visitation was estimated to be about 3,200, 556 were hunters.

The 1979 GMP identified a maximum daily capacity of 420 people for North Manitou Island. A capacity of 60 was identified for the village area, and the remainder was allocated to the backcountry. Although it is conceivable that 200 people per day could be carried to the island on the existing 50- and 150-passenger ferries, island visitation is not expected to exceed 200 per day in the next 10 to 15 years.

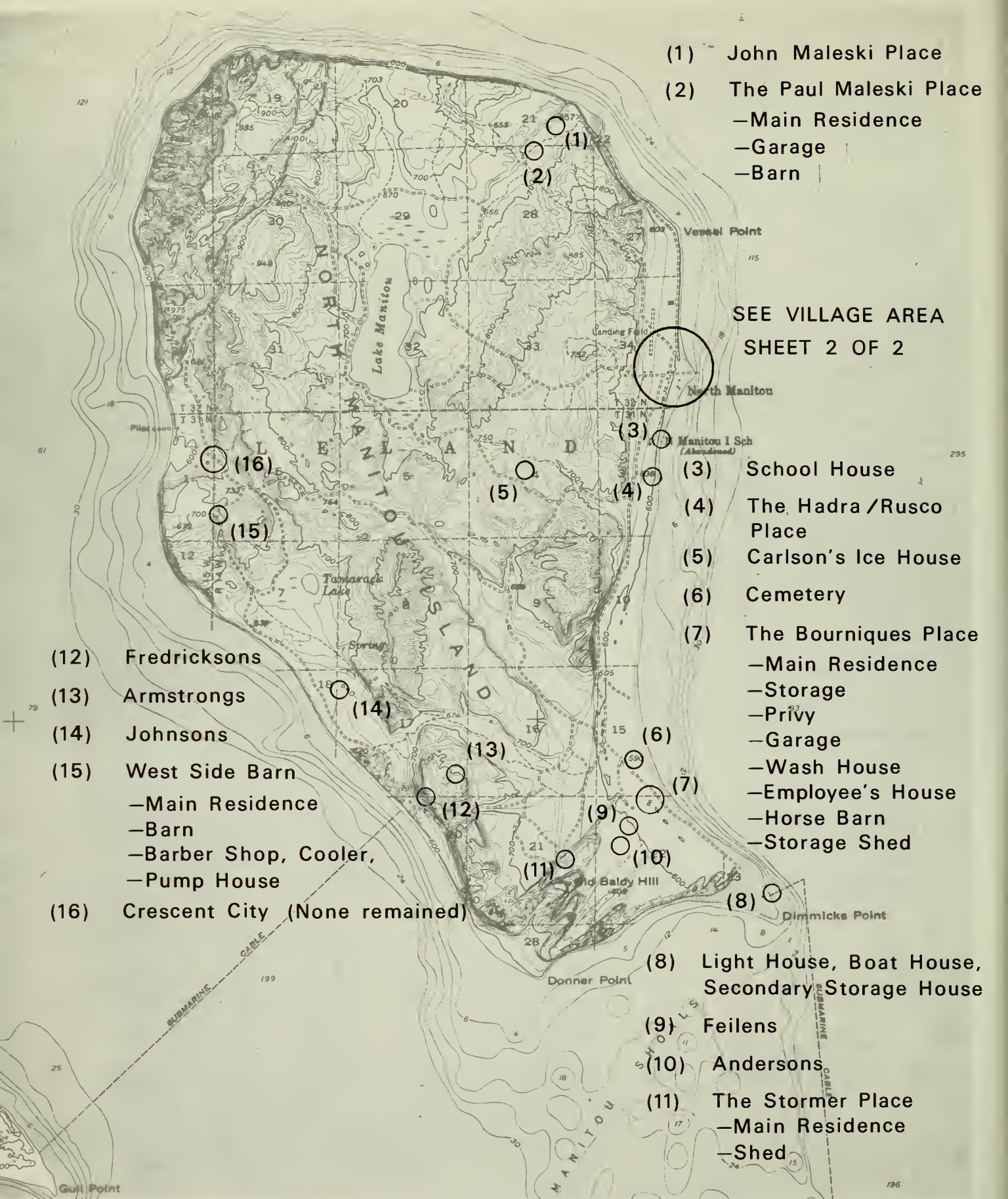
EXISTING DEVELOPMENT

Village Area

The temporary boat dock north of the village is limited to the time required for loading and unloading. Park visitors are not permitted to bring vehicles on the island. The ranger station in the former lifesaving station is the only visitor contact point. Rangers assigned to the island are housed in the former lifesaving station main building and the boat house. A pit toilet near the lifesaving station is available for public use. The generator building is used to house a diesel generator and maintenance storage. The

Table 1: North Manitou Island Historic Structures

| Structure | Bldg. No. | Const. Date | Theme Association | Size (Approx. Sq. Ft.) | Condition | Potential National Register Eligibility | Current Status/ Use |
|--|-----------|-------------|-----------------------------|------------------------|----------------|---|--|
| John Maleski place | 1 | c.1910 | Agri./Fishing | N/A | Ruins | No | School land Private use until 1998 |
| Paul Maleski place | 2 | c.1910 | Agriculture | N/A | Ruins | No | |
| Schoolhouse | 3 | c.1907 | Education | N/A | Ruins | No | |
| Hadra/Rusco house | 4 | c.1965 | Recreational | N/A | Good | No | |
| Carlson's icehouse | 5 | c.1900 | Agri./Fishing | N/A | Ruins | No | Private residence (seasonal) |
| Cemetery | 6 | 1890s | Exploration and settlement | N/A | Poor | No | |
| Bournique place | 7 | c.1900 | Recreational | N/A | Poor | Yes | |
| Lighthouse complex | 8 | c.1896 | Transportation and commerce | N/A | Ruins | No | |
| Failen place | 9 | c.1910 | Carpentry | N/A | Ruins | No | Storage |
| Anderson place | 10 | 1880s | Agriculture | N/A | Ruins | No | |
| Stormer place | 11 | 1880s | Agri./Logging | N/A | Ruins | No | |
| Fredrickson place | 12 | 1880s | Agriculture | N/A | Ruins | No | |
| Armstrong place | 13 | 1890s | Agriculture | N/A | Ruins | No | Storage |
| Johnson place | 14 | 1890s | Agriculture | N/A | Ruins | No | |
| Swenson/Westside barn | 15 | c.1900 | Agri./Logging | 8,000 | Fair | Yes | |
| Crescent City ruins | 16 | c.1906 | Logging | N/A | Ruins | No | |
| Shepard summer hotel | 17 | 1895 | Resort/Rec. | N/A | Fair | Yes | Storage |
| Treehouse | 18 | 1930s | Resort/Rec. | 360 | Poor | No | |
| Burdick cottage | 19 | 1894 | Resort/Rec. | 960 | Poor | No | |
| Fiske cottage | 20 | 1894 | Resort/Rec. | N/A | Fair | No | |
| Wing cottage | 21 | 1894 | Resort/Rec. | 900 | Fair | No | Storage |
| Londergan cottage | 22 | c.1910 | Resort/Rec. | 1,100 | Fair | No | |
| Hollister cottage | 23 | 1930s | Resort/Rec. | N/A | Fair | No | |
| Monte Carlo cottage | 24 | 1893-4 | Resort/Rec. | 1,060 | Fair | No | |
| Degan cottage | 25 | 1902 | Resort/Rec. | 600 | Fair | No | Storage |
| Campbell cottage | 26 | 1895-8 | Resort/Rec. | 1,100 | Fair | No | |
| Lifesaving station complex crew's quarters | 27 | 19th C. | Trans./Commerce | 600 | Good | Yes | |
| lifesaving station | 28 | 19th C. | Trans./Commerce | 2,400 | Good | Yes | |
| boat house | 29 | 19th C. | Trans./Commerce | 1,000 | Good | Yes | Storage |
| beach cart house | 30 | 19th C. | Trans./Commerce | 700 | Fair | Yes | |
| root cellar | 31 | 19th C. | Trans./Commerce | N/A | Fair | Yes | |
| shed | 32 | 19th C. | Trans./Commerce | N/A | Fair | Yes | |
| Caretaker/Halseth house | 33 | 1920s | Resort/Rec. | 1,000 | Fair | No | Storage |
| Generator building | 34 | 1930s | Resort/Rec. | 600 | Fair | No | |
| Office | 35 | 1939 | Resort/Rec. | 350 | Fair | No | |
| Sawmill | 36 | 1927 | Logging | 3,500 | Fair/ poor | Yes | |
| Village barn | 37 | 1927 | Agri./Resort/Rec. | 5,000 | Fair | Yes | Storage |
| Machine shop | 38 | 1930s | Agri./Resort/Rec. | 550 | Fair | No | |
| Carpenter shop | 39 | 1930s | Agri./Resort/Rec. | 700 | Fair | No | |
| Gas station | 40 | 1930s | Agri./Resort/Rec. | c.70 | Fair | No | |
| Misc. village sheds | 41 | 1930s | Agri./Resort/Rec. | N/A | Fair/ ruins | No | Storage |
| Garage | 42 | 1930s | Agri./Resort/Rec. | 1,600 | Fair | No | |



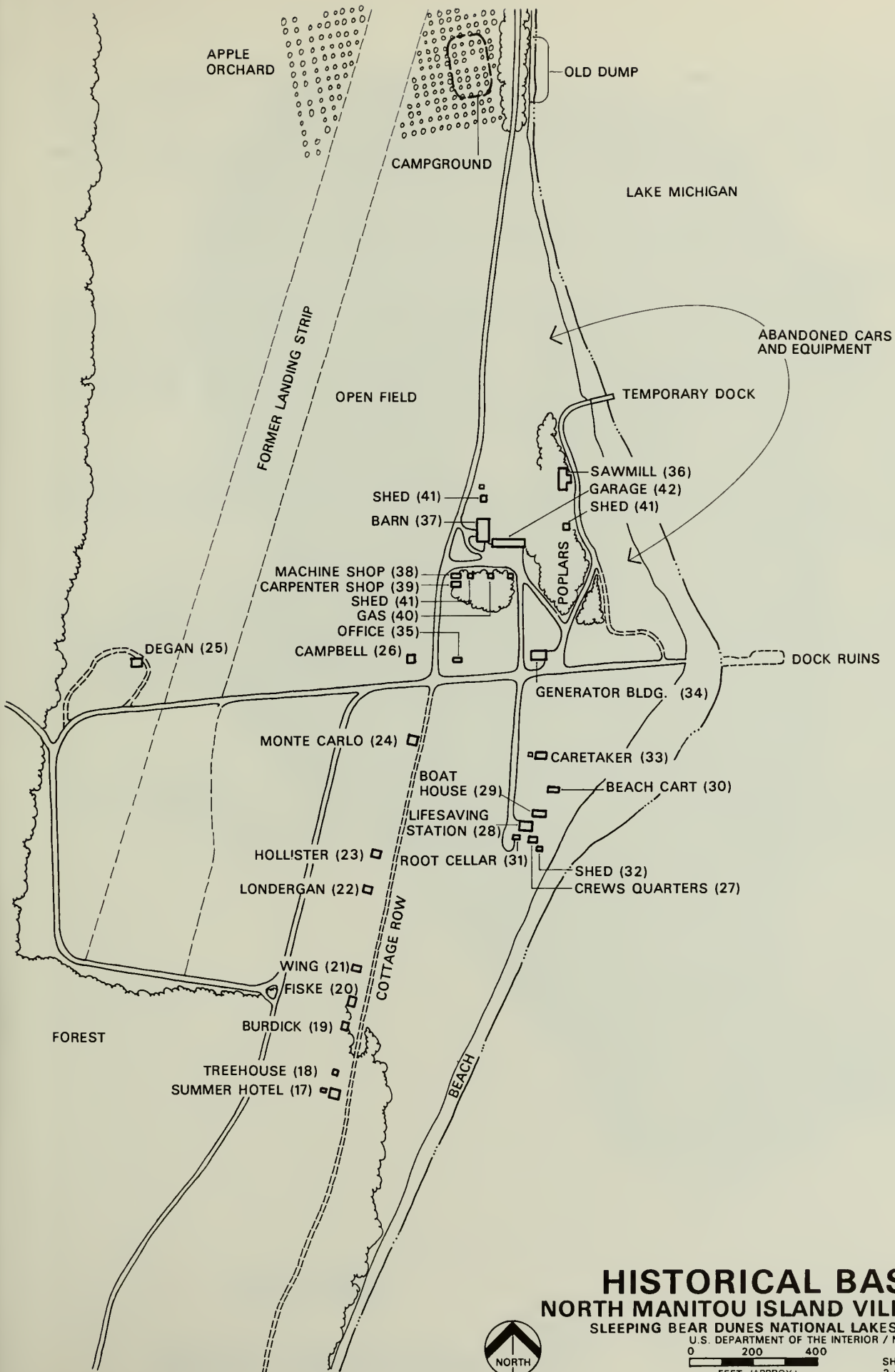
HISTORICAL BASE MAP

NORTH MANITOU ISLAND

SLEEPING BEAR DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

SHEET 1 OF 2
634 25,001
MAR 86 DSC



SLEEPING BEAR DUNES NATIONAL LAKESHORE, MICHIGAN

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FEET (APPROX.)

SHEET 2 OF 2
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DSC1 MAR 86

barn is used for deer carcass storage during the hunting season. The Hollister place, including a house and 0.7-acre of land, is a "category 3" property, meaning that, unless the owner wishes to sell, it will remain private property under a restrictive use agreement. Other structures in the village are currently unused. Some of the buildings are structurally unsound.

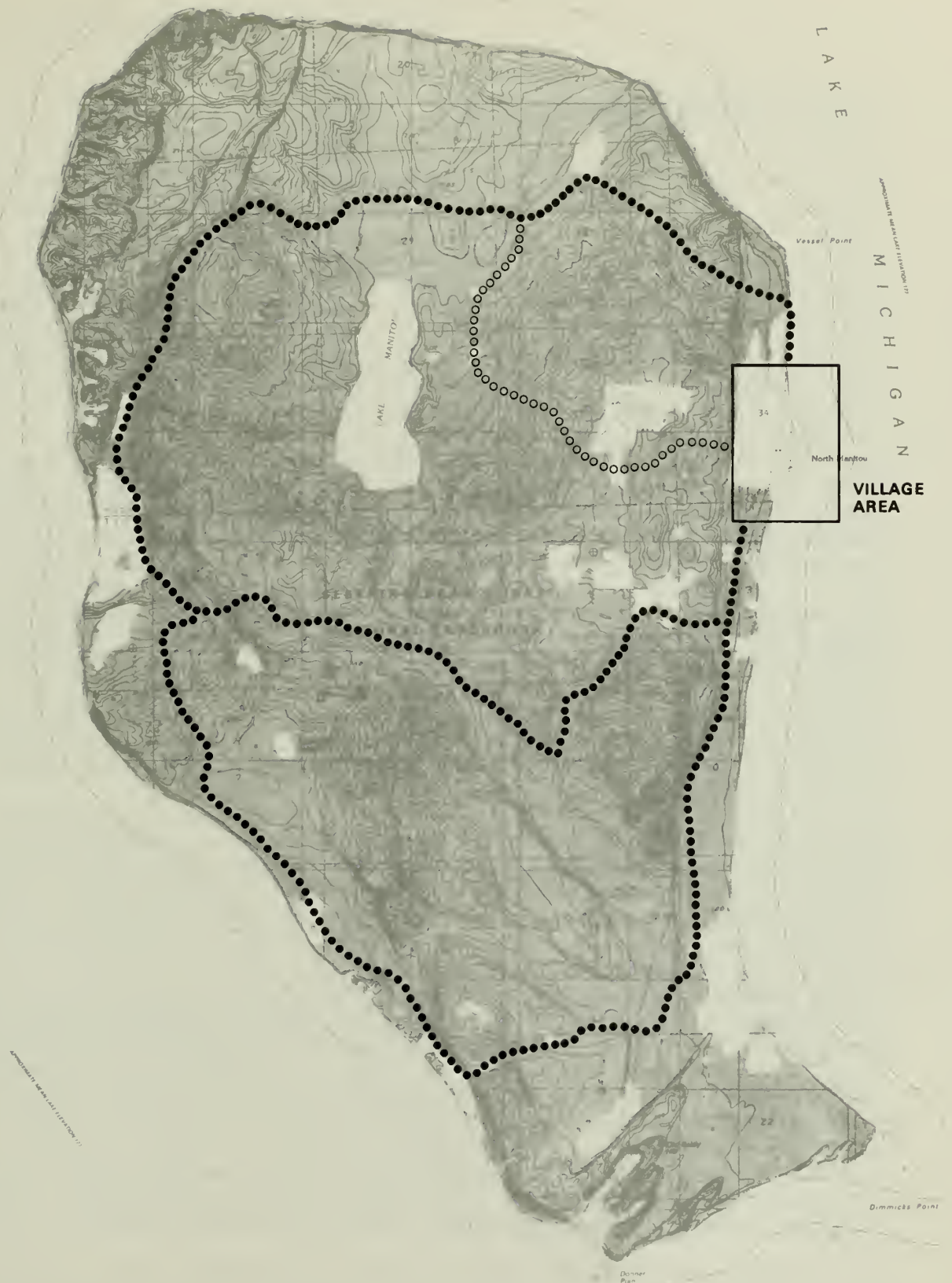
Backcountry

Most of North Manitou Island is federally owned. A 0.6-acre parcel, about 1/2 mile south of the village (Rusco tract), has a reservation of use and occupancy until 1998, at which time it will be unencumbered federal land. Until that time the holders are guaranteed rights of access and privacy. A 1-acre tract of school property, 1/4 mile south of the village, can only be acquired by the government through donation.

Leelanau County claims right-of-way to approximately 40 miles of dirt roads on the Island. To date, the county has been unwilling to abandon its claim because it would lose substantial aid (about \$900 per mile) from the state to maintain the roads.

Visitor access throughout the island is limited to foot traffic. An extensive network of dirt roads was developed for logging, farming, and Manitou Island Association activities, which provide routes to open fields, old buildings, and some natural features. The park staff has designated about 20 miles of these former roads as hiking trails in a figure-eight loop system that provides internal circulation routes to major portions of the island (see Trails map).

The park has installed fire grills and a pit toilet for a small (7-site) primitive campground about 1/4 mile north of the village. No other visitor facilities are on the island. A number of structures--abandoned houses, barns, and sheds--are deteriorating and may be a safety hazard.



..... EXISTING
 - - - - - PROPOSED



DESIGNATED TRAILS
NORTH MANITOU ISLAND
 SLEEPING BEAR DUNES NATIONAL LAKESHORE, MICHIGAN
 U.S. DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE
 634 140 084
 DSC1MAR 88

THE PLAN

VISITOR EXPERIENCE/INTERPRETATION

The basic visitor use concept for North Manitou Island, as established in the GMP, is a primitive experience emphasizing solitude, a feeling of self-reliance, and a sense of exploration. Only limited orientation and interpretive aids will be provided; the visitor will primarily use personal skills at getting around. The primary visitor activities will be primitive camping, hiking, backpacking, and hunting. A limited amount of day use will occur by visitors arriving in private boats, but the typical visitor will arrive at the village by ferry with the interest, equipment, and skills for a primitive, overnight recreational experience. A limited trail system will provide access to major segments of the island, but much of the island will remain without trails, where visitors will find their own way if interested in exploring these areas. Designated primitive campsites will be provided near the village, and potable water will only be available at the village. Food must be packed onto the island and trash packed off. Beyond the designated campgrounds near the village, visitors will find their own campsites, unless crowding or resource impacts require more intensive management actions in the future.

The natural and cultural resources and history story are largely similar on North and South Manitou islands. Rather than provide similar experiences on both islands, the GMP emphasizes interpretive and day use activities on South Manitou Island and primitive overnight use on North Manitou Island. Ferries will run to North Manitou only once a day, so most island visitors will camp or backpack at least one night. Informational materials should warn people that inclement weather may force them to stay several nights, even if they intend to stay only one night.

Personal contact for orientation purposes will be at the beach cart house near the lifesaving station. Graphic panels or photographs will also be used in this small contact station to highlight key island resources. To preserve the primitive, wilderness character of North Manitou Island, no on-site interpretive center is proposed. Rather, information, backcountry etiquette, safety, and interpretation will be provided in two publications. In addition to an island brochure with a trail map, such as is now offered at the park free-of-charge, a more comprehensive guidebook to North Manitou Island is recommended. The book, which could be sold at a nominal cost, would contain detailed trail maps and suggested trips of various lengths, safety and backcountry use messages, interpretation of natural history on North Manitou, and some mention of the island's human history. For visitors who desire more detailed interpretation, publications that offer in-depth regional natural and cultural history interpretation will be for sale at park information centers. A possible addition to the park's existing publications would be a detailed history of human settlement and industry on the Manitou Islands.

Up to three simple wayside exhibits will be provided in the village to (1) provide orientation, (2) interpret the lifesaving station, and (3) interpret the sawmill structure (if determined eligible for the National Register of Historic Places).

VILLAGE AREA DEVELOPMENT

The village area development concept is to provide the minimum visitor and administrative facilities in a threshold to the island's wilderness area. The primary proposal, as identified in the GMP, is to centralize most functions in the lifesaving station complex. Some functions not discussed in the GMP, such as visitor orientation and comfort facilities, are addressed in this DCP and specific actions are further defined.

Because the former lifesaving station buildings are considered historically valuable and in good condition, they will be preserved and used for administrative purposes. As shown on the Village Area Development map, the beach cart house will be adapted to accommodate visitor orientation and to provide public restrooms. The beach cart house is the closest building to the new dock and therefore the most appropriate place to provide visitor information. A trail will provide access from the dock to the contact station.

Housing for NPS rangers will be provided in the caretaker's house, the south lodge, and the boat house. These structures will provide quarters that are separate from, but clustered near, the contact station to serve visitors while providing some privacy for park employees. Transient visitors on official business, such as park maintenance crews or researchers, will be housed in the main lifesaving station building. This lodging will reduce the need for travel between the mainland and island, which is time-consuming during fair weather and impossible during high wind conditions.

The generator building will continue to be used for basic maintenance needs, and the root cellar will be used for storage. Major maintenance needs will be served by facilities on South Manitou Island and the mainland.

If determined eligible for the National Register of Historic Places, the sawmill will be preserved for interpretation because of its location in the village and interpretive potential. Until a historic structure report with recommended preservation treatments has been completed, the minimum stabilization efforts will be applied to keep the building standing, weather-resistant, and safe.

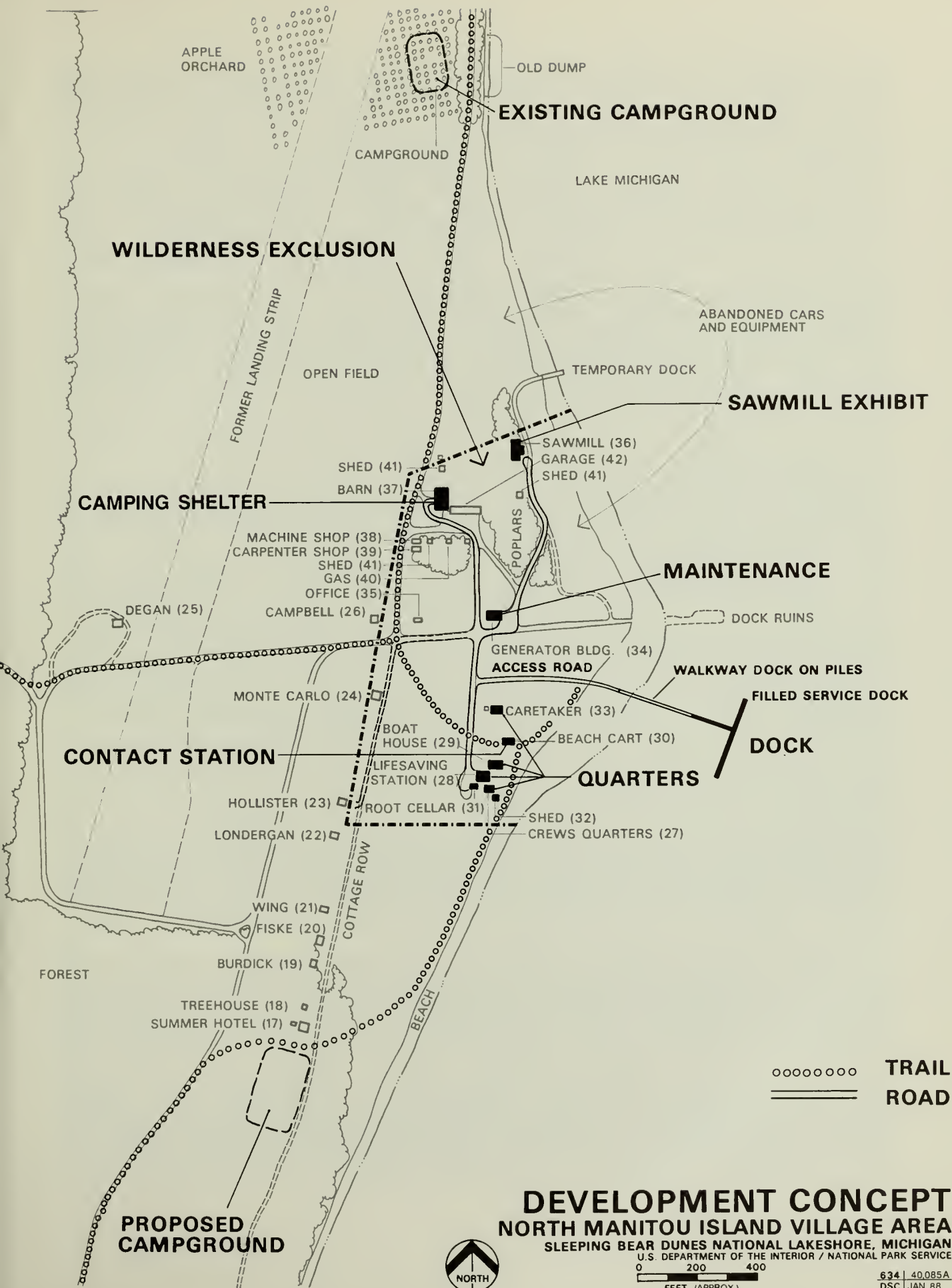
The barn will be used as an overnight camping shelter for a maximum of 25 people. Basic accommodations will be provided for individuals or groups in a setting similar to a primitive backcountry cabin or hut. It will not have indoor plumbing, electricity, or cooking facilities. Fire rings, picnic tables, and a vault toilet will be available nearby. Other NPS-owned buildings and trash will be removed from the island.

Under this plan, development and maintenance costs will be minimized, and a relatively compact cluster of buildings will house most of the necessary functions. Village area building uses and disposition are summarized in table 2.

Table 2: Proposed Building Use - North Manitou Island Village

| <u>Building (Number)</u> | <u>Use/Disposition</u> |
|--------------------------|-------------------------------|
| Beach cart house (30) | Visitor contact/restrooms |
| Caretaker's house (33) | Park residence |
| Crew's quarters (27) | Park residence |
| Boat house (29) | Park residences (two units) |
| Lifesaving station (28) | Lodging for official business |
| Shed near station (32) | Generator |
| Root cellar (31) | Storage |
| Generator building (34) | Maintenance and storage |
| Barn (37) | Camping shelter |
| Sawmill (36) | Interpretive exhibit* |
| Hollister house (23) | Private residence (seasonal) |
| Monte Carlo house (24) | Remove |
| Londergan house (22) | Remove |
| Wing house (21) | Remove |
| Fiske house (20) | Remove |
| Burdick house (19) | Remove |
| Treehouse (18) | Remove |
| Summer hotel (17) | Remove |
| Machine shop (38) | Remove |
| Carpenter shop (39) | Remove |
| Garage and sheds (41,42) | Remove |
| Gas station (40) | Remove |
| Campbell house (26) | Remove |
| Office (35) | Remove |

*If determined eligible for the National Register of Historic Places; otherwise remove.



Electricity will continue to be produced for village administrative needs. The generator will be relocated to the shed near the lifesaving station, and power lines will be placed underground. Power lines in the lifesaving station complex may be preserved as historic features if the complex is accepted to the National Register of Historic Places. The generator will be run on an intermittent schedule, a few hours in the morning and early evening, to save fuel and to reduce noise impacts. Solid waste produced from park administrative functions will continue to be compacted in the maintenance building and removed from the island. Visitors will also be asked to pack out their trash as is typically the case in wilderness areas. The village well has an estimated capacity of 20 gallons per minute, which appears adequate for the anticipated water needs. The lifesaving station septic system was replaced in 1985. The system will be expanded or a separate system developed as needed when the contact station is remodeled and public restrooms are installed. A chlorinated water system will be installed to serve the village facilities.

WILDERNESS BOUNDARY

Boundaries for the village 27-acre wilderness exclusion are shown on the Development Concept map. A legal description for this area will be developed when the wilderness area is established by Congress.

The Wilderness Recommendation (NPS 1981) has one minor inconsistency. The Wilderness Plan map shows a 27-acre exclusion for the village area and a 5-acre exclusion for a proposed dock and ranger station near Dimmicks Point. However, the document states that 14,726 acres of the total 14,753 acres is recommended for wilderness, leaving only 27 acres for both exclusions. This inconsistency is now moot because the southern exclusion is no longer deemed necessary. The wilderness map should be revised during the legislative process to delete the 5-acre Dimmicks Point exclusion.

BACKCOUNTRY AREA

The entire island outside the village exclusion will continue to be managed as wilderness. Structures in the wilderness area will be allowed to gradually deteriorate by natural causes. If they are still standing and present a safety hazard, they will be pulled down and the ruins left in place.

Backcountry use is currently regulated by the "Superintendent's Orders" (NPS 1985). Open campsite selection is permitted on North Manitou Island using wilderness camping techniques. Campfires are not allowed, and trash must be packed out. Camping is prohibited in the 27-acre village area; within sight or sound of another campsite, developed area, and Manitou Lake; or within 300 feet of the Lake Michigan high-water mark, a maintained trail, or any building, including old farm structures in various stages of repair. Campfires are permitted in the fire grills at the small designated campground north of the village. A pit toilet is also provided at this campground.

Because the area was opened to visitors only recently and there was no permanent docking facility until 1987, island visitation has been low, NPS experience in managing North Manitou Island visitors is limited, and resource impacts are not yet a problem. To allow for maximum freedom of use, which is consistent with the wilderness concept, and minimum administrative burdens, the open-camping policy will be continued, at least until use levels are greater and potential problems are more readily apparent. Dimmicks Point will continue to be closed during the May 1 to July 31 nesting season to protect the piping plover, and the area will be monitored to ensure the birds are not disturbed.

A general monitoring program will be established by the park to assess the impact of backcountry camping as use develops. Parameters to be assessed include campsite density, vegetation loss, bare soil increase, soil erosion, tree damage, root exposure, sanitation, and informal trail development. The monitoring program will be similar to those advocated by Cole (1983) and others for wilderness management. If impacts reach unacceptable levels, more intensive backcountry management techniques will be considered. These include designated zones to spread use, designated areas to concentrate impacts in appropriate locations, designated campsites to control impacts and to ensure solitude, or primitive toilets to solve a human sanitation problem. Guidelines for establishing the limits of acceptable change can be found in the wilderness literature (e.g., Stankey et al. 1985). A 420 persons-at-one-time capacity was established for North Manitou Island in the 1979 GMP. Of those, 360 were allocated to the backcountry. This capacity will be reevaluated in the future based on the monitoring program results.

Because the village is adjacent to the landing dock, it is anticipated that there will be a demand for campsites nearby. The 1979 GMP established a 60-person capacity for overnight use in the village area. Assuming that an average of 10 people per night use the camping shelter, designated campsites will be needed to serve about 50 people. With an average of three people per site, about 17 campsites will be needed. To retain a primitive, low-density experience, two small campgrounds are proposed rather than one larger area. These include the existing seven-site campground north of the village and a new 10-site campground south of the village (see Development Concept map). The proposed campground will be in a wooded area set back from Lake Michigan. It will offer adequate space for a low site-density and an attractive natural setting. It will be near the village but screened by vegetation which will offer a more primitive experience. The campground will also be visually screened by vegetation from the view of passing boaters on the lake.

Because both campgrounds are inside the proposed wilderness area, they will be accessed by foot trails and served by backcountry toilets. Water and comfort facilities will be available at the village contact station, a short walk from either campground, and campfires will be permitted in designated fire rings.

The existing figure-eight trail system on former dirt roads will be retained. Because of the attraction of Lake Manitou, a trail will be designated on the former dirt road passing near the lake (see Designated Trails map). Other trails may be added to or deleted from this basic system in the future as use patterns develop and visitor needs are better understood. To protect piping

plover habitat, no trails will be designated on or to Dimmicks Point. The point will be closed to visitor use during the nesting season.

Because the former dirt roads are primitive, their designation as trails seem acceptable at this time. The long-range NPS management objective is for wilderness; therefore, all road maintenance should be discontinued in the backcountry and the designated trails allowed to revegetate to a typical single-file trail width.

Other backcountry roads will also revegetate and revert to wilderness conditions through natural processes.

Because any point on the island is within a half day's hike from the village, backcountry patrol cabins are not necessary. To facilitate ranger activities and provide for emergency needs, one or more portable storage chests may be placed in the backcountry at strategic locations. They would be used to store basic equipment such as tents, sleeping bags, emergency gear, a food cache, and some fire-fighting equipment. These would be placed out of sight from trails and typically used campsite areas.

IMPLEMENTATION COSTS AND PRIORITIES

The estimated costs to implement the proposal are displayed in table 3.

The highest priority development project at North Manitou Island is the permanent boat dock in the village area. The funding allotted in 1986 to construct the dock was not sufficient for the entire project. Therefore, the dock is being built in two phases. The service road and walkway dock was installed in 1987. The second phase, service dock or all-weather portion of the structure, will be built when additional funding becomes available.

Another high-priority item is adapting the beach cart house for the contact station and restrooms. Currently, no space is allocated for this vital contact/orientation function, and toilet facilities are not available in the village.

Table 3: Cost Estimates

| <u>Development Project</u> | <u>Gross Cost</u> |
|--|-------------------|
| Develop dock phase 2: service dock (6,192 sf filled) | 926,000 |
| Adapt beach cart house for contact station and restrooms (780 sf) | 128,000 |
| Septic system and utilities | 79,000 |
| Remodel residences | |
| South lodge (crews' quarters) 660 sf | 26,000 |
| Caretaker's residence 1,300 sf | 51,000 |
| Underground all power lines in village (500 lf) | 9,000 |
| Develop primitive campground south of village | |
| 10 sites | 3,000 |
| 1 toilet | 7,000 |
| Provide vault toilet at camping shelter | 7,000 |
| Remove buildings and trash from village area | 60,000 |
| Stabilize sawmill (2,000 sf) | 52,000 |
| Develop trails in village | <u>7,000</u> |
| Subtotal | \$1,335,000 |
| <u>Interpretive Media</u> | |
| Contact station exhibits (390 sf) | 60,000 |
| Wayside exhibits for village area (3) | <u>25,000</u> |
| Subtotal | \$ 85,000 |
| Grand Total | \$1,440,000 |

NOTE: Except for the dock estimate, these costs are rough (class C) estimates. Actual costs may be higher because of transportation difficulties to and from an island.

LEGAL COMPLIANCE/CONSULTATION

NATIONAL ENVIRONMENTAL POLICY ACT

This DCP/IP is consistent with the 1979 GMP and the Environmental Assessment for a docking facility. Any variations from the GMP are minor in nature and would cause minimal, if any, environmental impact. They are, therefore, categorically excluded from further NEPA compliance. A draft DCP (NPS 1987) was submitted to appropriate agencies, individuals, and organizations for public review to comply with NPS planning procedures and other legal compliance requirements during June and July of 1987. No significant environmental issues were raised.

ENDANGERED SPECIES

In compliance with the Endangered Species Act, the Park Service informally consulted with the U.S. Fish and Wildlife Service on endangered species concerns. The NPS opinion is that the DCP will have no effect on listed endangered species or species under review for possible listing. No trails will be developed on or to Dimmicks Point, and the area will continue to be closed during the nesting season to protect the piping plover. Proposed development will not adversely affect plant species listed by the state of Michigan. A copy of this draft DCP was sent to the Fish and Wildlife Service for their review and comment, and they concurred with the no effect determination as long as protective measures for the piping plover, as indicated above, are implemented.

FLOODPLAINS AND WETLANDS

In compliance with Executive Order 11988 "Floodplain Management" and EO 11990 "Protection of Wetlands," impacts on floodplains and wetlands have been avoided. The only development in a floodplain is the docking facility. Because there is no practicable alternative to locating the facility in the floodplain, it is an "excepted action" according to NPS floodplain management guidelines (45 FR 35916), and no further compliance actions are necessary. However, the docking facility is being designed to accommodate a wide range of lake levels and to withstand the damaging effects of severe storms. No wetlands are affected by proposals in the DCP.

NATIONAL HISTORIC PRESERVATION ACT

The Park Service consulted with the Michigan state historic preservation officer (SHPO) and the Advisory Council on Historic Preservation about the plan's effect on resources that may be eligible for listing on the National Register of Historic Places. Forms will be submitted to the SHPO to determine if the identified structures are eligible for listing on the National Register. The former lifesaving station complex will be preserved through continued adaptive use for visitor contact, restrooms, and park administrative functions. The sawmill will be preserved through

stabilization and maintenance as a static interpretive display if it is determined eligible for the National Register. Other buildings that may be eligible for the National Register are in the proposed wilderness area with little or no potential for adaptive use. These include the Swenson/Westside barn, the Summer hotel, and the Bournique place. They are proposed for either no action or removal and will be recorded in compliance with NPS cultural resource management guidelines as appropriate for their historic building status. A Memorandum of Agreement on the North Manitou Island DCP was executed between the NPS regional director and the SHPO in July, 1987. No comments were received from the Advisory Council on Historic Preservation during the public review period.

ARCHEOLOGY

This DCP/IP will have no effect on known archeological sites. However, before proceeding with any ground-disturbing activities, the development will be reviewed by a qualified archeologist, and if unknown resources are identified, they will be reviewed for eligibility to the National Register. If eligible, a mitigation plan will be developed in consultation with the SHPO.

COASTAL ZONE MANAGEMENT

Because North Manitou Island is in Lake Michigan and the state is participating in the federal Coastal Zone Management Program, a copy of the Draft DCP was sent along with a "Consistency Determination" to the Michigan Department of Natural Resources (MDNR). No comments were made on the North Manitou Island DCP.

APPENDIX: ALTERNATIVES ANALYSIS

North Manitou Island Development Concept Plan Sleeping Bear Dunes National Lakeshore November 1985

| | | |
|-------------|--|---|
| Issue | <u>Building Treatment in Backcountry</u> | |
| Alternative | A | Allow structures within the wilderness area to deteriorate naturally - ruins could be pulled down in place if they become unsafe* - minimal cost - retains visual intrusion - some safety hazards even if pulled down |
| Alternative | B | Remove all structures within the wilderness area - restores natural conditions - greater cost if buildings cannot be sold for salvage - removes visual intrusion - removes all safety hazards |
| Issue | <u>Backcountry Interpretation</u> | |
| Alternative | A | Use only a brochure/map similar to the existing green brochure** - provides minimum information, some visitor confusion - requires staff time to supplement - relatively low cost |
| Alternative | B | Use brochure/map and also produce a guide booklet that includes maps, some interpretation, backcountry trip planning information, etc.* - enhances visitor experience - less staff time spent on orientation - additional costs to publish - more difficult to update |
| Issue | <u>Trails</u> | |
| Alternative | A | Retain existing system (approximately 20 miles)** - easy to implement (existing roads) - least cost to develop - moderate cost to maintain - emphasizes cultural resource experience |

* Planning team recommendation

**Minimum requirements alternative where it differs from planning team recommendation

- | | | |
|-------------|---|---|
| Alternative | B | Develop an extensive network with some new trails (total about 38 miles) - harder to implement (some new routes) - moderate cost to develop (\$80,000) - greatest cost to maintain (most miles) - greatest variety of experience - improves access to many areas of the island |
| Alternative | C | Develop a limited, basic loop system with mostly new trails (total about 27 miles) - requires more new trail construction, some impacts - greater cost to develop (\$160,000) - less cost to maintain (designed trails) - emphasizes natural environment/wilderness experience - improves access to north shore and other natural features - more varied experiences - could be implemented without county road problem being resolved |
| Alternative | D | Retain existing system with limited additions (total about 27 miles) - easy to implement - low cost to develop (\$20,000) - moderate cost to maintain - improves north-south access and other interior access |

Issue Backcountry Camping

- | | | |
|-------------|---|--|
| Alternative | A | Allow hikers to select their own campsites, restricted only by certain criteria set by the Park Service* - least constraining for visitors - most consistent with wilderness use philosophy - spreads impacts unless popular spots develop, then can concentrate impacts - use levels in certain areas harder to control - regulations harder to enforce - ranger doesn't know where visitors are camping - identified in GMP |
| Alternative | B | Define broad zones in which set numbers of hikers are allowed to select campsites (in keeping with park restrictions) - similar to A except use levels can be controlled, somewhat more restrictive - ranger knows roughly where visitors are camping |

| | | |
|-------------|---|--|
| Alternative | C | Designate small camping areas for a limited number of hikers to choose from (but not specific sites) |
| | | <ul style="list-style-type: none"> - more restrictive - use and impacts concentrated in one area - potential for rotating areas with some difficulties - provides primitive toilets if needed - ranger knows where visitors are camping |

| | | |
|-------------|---|--|
| Alternative | D | Designate specific sites where hikers must camp |
| | | <ul style="list-style-type: none"> - most restrictive for visitors - use and impacts concentrated at selected sites - only method to ensure solitude (if sites are dispersed) - campfires possible - toilets less feasible if sites are dispersed, but also less needed - rangers know exactly where visitors are camping - sites can be rotated if needed - easiest to enforce, less confusion over violations - greatest staff work in issuing permits and managing system - advanced reservations for sites may be needed to make the system equitable - identified in GMP |

| | |
|-------|--------------------------------------|
| Issue | <u>Backcountry Patrol Facilities</u> |
|-------|--------------------------------------|

| | | |
|-------------|---|--|
| Alternative | A | None |
| | | <ul style="list-style-type: none"> - overnight/emergency equipment must be carried - limited overnight patrols - most consistent with wilderness philosophy |

| | | |
|-------------|---|---|
| Alternative | B | Storage chest(s)* |
| | | <ul style="list-style-type: none"> - low cost/minimal maintenance - allows better response to unforeseen circumstances - less time spent traveling to/from village |

| | | |
|-------------|---|--|
| Alternative | C | Patrol cabin |
| | | <ul style="list-style-type: none"> - highest cost to construct/maintain - least consistent with wilderness concept - may be subject to break-in - more versatile, easiest to use |

*Planning team recommendation

Issue

Village Development Concept

Alternative

A Consolidate in Coast Guard complex*

- Visitor contact - beach cart house
Restrooms - Beach cart house
Employee quarters - caretaker residence, south lodge,
and boat house (two units)
Short-term lodging - Coast Guard station
Maintenance - generator building
Storage - root cellar, shed
Shelter - barn or other suitable structure
Other buildings - remove (except sawmill - minimum
stabilization)
- least cost to upgrade (\$220,000) and maintain
 - would fit within 27-acre wilderness exclusion limit
 - functionally compact and efficient use of space
 - may not be best building for intended use
 - most consistent with primitive/wilderness
management concept for N. Manitou Island
 - greatest impact on cultural resources (most buildings
removed) but primary ones retained
 - employee quarters in close proximity
 - most consistent with GMP concept

Alternative

B Functional arrangement/spread use

- Visitor contact - stone office building
Restrooms - generator building
Employee quarters - Coast Guard station, boat house,
Fiske house, and Wing house
Short-term lodging - summer hotel
Maintenance - barn
Storage - barn, beach cart house, root cellar, shed
Other buildings - remove (except sawmill - make safe or
pull down and let deteriorate)
- moderate cost to upgrade (\$460,000) and maintain
 - requires larger wilderness exclusion or convoluted
boundary
 - facilities dispersed, less efficient use of space
 - best buildings for intended use
 - less consistent with primitive/wilderness concept for
island
 - less impact on cultural resources (more buildings
preserved)
 - more privacy provided for employee quarters
 - less consistent with GMP

*Planning team recommendation

- Alternative C Maximum building preservation/additional uses
- Visitor contact - stone office building
Restrooms - beach cart house
Employee quarters - Monte Carlo house, caretaker's house, Londergan house, and Wing house
Short-term lodging - Coast Guard station
Maintenance - barn and shed (garage)
Storage - South lodge, root cellar, shed
Interpretive center - boat house
Research station - Coast Guard station
Hostel - summer hotel and Fiske house
Powerhouse - generator building
Other buildings - remove (except sawmill - stabilize)
- greatest cost to upgrade (\$900,000) and maintain
 - requires larger wilderness exclusion or convoluted boundary
 - facilities dispersed; least efficient use of space
 - best buildings for intended use
 - least consistent with primitive/wilderness concept for island
 - least impact on cultural resources (most buildings preserved)
 - more privacy for employee quarters, but less than alternative B because more activities
 - most variety of visitor experiences
 - requires interpretive staff for center
 - least consistent with GMP

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the editorial and graphics staffs of the Denver Service Center. NPS D-31A, December 1987

